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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/886,307	06/19/2001	Don T. Batson	AMAT/5090/FET/FET/DV	5746

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APPLIED MATERIALS, INC.
2881 SCOTT BLVD. M/S 2061
SANTA CLARA, CA 95050

EXAMINER

HANEY, MATTHEW J

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 07/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/886,307

Applicant(s)

BATSON ET AL.

Examiner

Matthew Haney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-12, 17, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Aloni (US 6,360,005 B1).

As for claims 1, 8-10, 17, and 20 are Aloni teaches of a controller coupled to the receiver and transmitter comprising a processor and at least one substrate imaging program that when executed; determines the trigger intervals for at least two trigger signals for the acquisition of at least two images on a substrate surface moving non-linear (Note: trigger signals are generated by a vision unit in response to a signal received from a stage controller which describes the position, Column 28, Lines 65-67 and Column 29, Lines 1-3); transmitting one or more optical signals from the transmitter

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to the first and second image positions on the substrate surface and receiving at least two trigger signals (i.e. Line times) at the receiver and receiving a portion of the one or more optical signals at the receiver from the first image position (Note: a scanner is operative to electro-optically scan an object to be inspected and to output a gray-level digital representation, Column 9, Lines 37-48, and Column 11, Lines 11-15); interval measuring apparatus to determine the trigger intervals and also comprising of counters, clocks, or any combination thereof (Column 9, Lines 49-54); processing the optical signals into an image and displaying the image (Note: output a gray-level digital representation, Column 9, Lines 37-39, and an operator display such as a CRT, Column 27, Lines 5-7).

As for claims 2 and 11 Aloni teaches of a receiver comprising a time-domain integration camera, a line camera, a CCD camera, or combinations thereof (Note: the CCD array of the scanner during a single line time, Column 11, Lines 11-15).

As for claims 3 and 4 Aloni teaches of a transmitter comprising, a broad band light source, a narrow band light source, or combinations thereof (Note: the upper illuminating system may employ a tungsten halogen lamp, Column 31, Lines 25-28).

As for claims 5, 6, 7, and 12 Aloni teaches of a first trigger interval corresponding to a first motor rotation indicative of the first image position and the second trigger interval corresponds to a second motor rotation indicative of the second image (Note: trigger signals for camera controller are generated by a vision unit in response to signals received from a stage controller, which is controlled by the main controller which receives its data from the scanner (i.e. camera or receiving device), Column 28, Lines

65-67 and Column 29, Lines 1-19); the first and second motor rotations are step wise, linear, on non-linear (Note: the said rotations of the motor are inherently necessary in order to get the require motion mentioned by Aloni).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13-16, 18-19 and 21-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aloni in view of Kobayashi (US 6,388,414 B1).

As for claims 13-15, most of the limitations of this claim have been noted in the above rejection of claim 12. Aloni does not teach of the trigger intervals being comprised of measuring the rotation of a motor, however, Kobayashi does (Note: rotating the step motor a predetermined number of steps in order to get to a certain detection zone, Column 4, Lines 12-32); the motor rotations are step wise, linear, on non-linear (Note: the said rotations of the motor are inherently necessary in order to get the require motion mentioned by Kobayashi). It would have been obvious to one skilled in the art to make the trigger intervals reliant on the rotation of the motor in order for the capturing of linear and non-linear motion.

As for claim 16, most of the limitations of this claim have been noted in the above rejection of claim 10. Aloni does not teach of trigger intervals that equal the number of

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steps and determine the image positions which comprises; measuring the first number of steps of the stepper motor for the first interval and measuring a second number of steps of the stepper motor for the second trigger interval, however, Kobayashi does (Note: moves 8 steps to get to detection zone and then forward a predetermined number of steps in order to get to the target position, Column 4, Lines 14-24). It would have been obvious to one skilled in the art to make the intervals a predetermined number of steps in order to keep the collection of data more precise and also the added benefit of the use of linear and non-linear motion.

As for claims 18-19, and 23-24, most of the limitations of this claim have been noted in the above rejection of claim 17 and 20. Aloni does not teach of providing the step time for each step of a stepper motor and determining the number of steps for the first image position and the number of steps for the second image position and summing the step time for each step of the stepper motor for the first image position and summing the step time for each step for the second image, however, Kobayashi does (Note: Use timing of steps in order to control the exposure time of the camera, Column 7, Lines 55-67, Column 8 Lines 1-10); and step time plus dwell time (i.e. stop time) (Column 8, Lines 2-10) It would have been obvious to one skilled in the art to sum the step times for each image in order to be used as an exposure time or in order to get a consistent production line.

As for claims 25 and 26, most of the limitations of this claim have been noted in the above rejection of claim 20. Aloni does not teach of determining the interval corresponding to the at least one image position comprising of measuring the rotation of

a motor wherein the rotation time to achieve the rotation angle defines the interval, however, Kobayashi does (Note: Rotating the step motor at a degree (i.e. angle) of four steps, Column 7, Lines 12-23). It would have been obvious to one skilled in the art to use degrees in much the same way as steps in order to provide consistency within the detection process.

As for claims 20-21 and 27-30, most of the limitations of this claim have been noted in the above rejection of claim 20. Aloni does not teach of determining the integration interval by determining the number of stepper steps from the start trigger point or first sensor (i.e. initial position) to the second sensor (i.e. returns to initial position), however, Kobayashi does (Note: the camera is in exposure operation, rotates a certain predetermined number of steps, then reaches the stop or close point, then starts the process over again, Column 7, Lines 55-67, Column 8 Lines 1-10). It would have been obvious to one skilled in the art to make the integration interval for the second sensor by making it the number of steps from the start trigger point to the second sensor in order to give an integration time that is appropriate so as to not overlap the integration process of another set of images.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prince (US 6,738,505 B1), which discloses and apparatus for detecting defects with an optical device by comparing images.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew Haney whose telephone number is 703-305-

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4915. The examiner can normally be reached on M-Th (7-4:30), Every Other Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on 703-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Matthew Haney
Examiner
Art Unit 2613

mjh


GIMS PHILIPPE
PRIMARY EXAMINER